



**US Army Corps
of Engineers**
New England District

696 Virginia Road
Concord, MA 01742-2751

PUBLIC NOTICE

Date: May 16, 2006
Comment Period Ends: July 31, 2006
File Number: 2005-658
In Reply Refer To: Ted Lento

Neptune LNG, LLC, One Liberty Square, 10th Floor, Boston, Massachusetts 02109 has requested a Corps of Engineers ("Corps") permit under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act to place fill material and structures within waters of the United States for the construction and operation of a liquefied natural gas (LNG) deepwater import terminal. The major fixed components would include an unloading buoy system, eight mooring lines consisting of wire rope and chain connecting to anchor points on the seabed, eight suction pile anchor points, approximately 4.0 km (2.5 mi) of natural gas flow line with flexible pipe risers and risers manifolds, and approximately 17.7 km (11 mi) of 24-inch natural gas transmission line with a hot tap and transition manifold to connect to the existing Algonquin HubLine.

Neptune LNG would construct and operate the terminal that would be located approximately 22 miles northeast of Boston, Massachusetts and approximately 7 miles southeast of Gloucester, Massachusetts in Federal waters approximately 260 feet in depth. The LNG terminal and pipeline is also regulated by the United States Coast Guard (USCG) & the U.S. Maritime Administration (MARAD) pursuant to the Deepwater Port Act. Corps permits are required because the proposed work occurs within jurisdictional waters of the United States. The two terminal buoys would be located at coordinates 70° 36' 22.5" W, 42° 27' 06.2" N and 70° 36' 20.8" W, 42° 29' 06.3" N.

The work is depicted on the enclosed plans entitled "NEPTUNE PROJECT" on Figures 1 through 15.

USCG and MARAD National Environmental Policy Act (NEPA) Review

The NEPA review of the Neptune project is being conducted by the USCG and MARAD with the participation and assistance of cooperating Federal Agencies including the Corps. The Draft Environmental Impact Statement is expected to be available for public review by June 2, 2006 and accessible to the public on the Department of Transportation Docket Management System internet site <http://dms.dot.gov> under docket number 2005-22611.

The U.S. Coast Guard is the federal agency responsible for safe vessel transit and facility operation, and the Corps will utilize their findings on these issues in its deliberations. The focus of this comment period and these hearings, for the Corps, is to receive comments on the installation of moorings and pipelines as well as the placement of fill material within the waterway, which is the Corps primary area of jurisdiction for this project.

PROJECT DESCRIPTION/CORPS JURIDICTIIONAL AREAS

The import terminal would receive and vaporize LNG from a fleet of three shuttle and regasification vessels (SRVs) equipped with vaporization equipment that would convert the LNG to natural gas that can

be transported to shore through conventional sub-sea pipelines. SRVs, each with a capacity of approximately 140,000 cubic meters (m³), would temporarily moor at the proposed deepwater port by means of a submerged unloading buoy system. Two unloading buoys would moor each SRV on location throughout the unloading cycle by means of mooring lines and anchor points located on the seabed. Two unloading buoys would be utilized so that natural gas can be delivered in a continuous flow, without interruption, by having brief overlap between arriving and departing SRVs. As the first SRV moored at the deepwater port finishes unloading, a second SRV (following its transit from an overseas loading point) would moor at the deepwater port. After vaporization of LNG and send out of natural gas, the first SRV would disconnect from the unloading buoy and proceed to an overseas loading point to reload. Meantime, a third SRV, already in transit to the deepwater port, would repeat the cycle. This sequence would provide the operational flexibility to allow uninterrupted delivery of natural gas.

Each unloading buoy would be connected to a 16-inch flexible riser leading to a 24-inch sub-sea flow-line and 24-inch gas transmission line. This transmission line would connect the deepwater port to the existing 30-inch HubLine gas transmission line operated by Algonquin Gas Transmission LLC, that runs below Massachusetts Bay, approximately 9 miles west of the proposed deepwater port location. Figure 4 is a schematic diagram of the pipeline and sub-sea system. Figure 5 shows an unloading buoy, mooring, and riser arrangement. Figure 6 shows details of the unloading buoy.

The major fixed components of the proposed deepwater port in Corps jurisdiction would include the following:

- An unloading buoy system located in a water depth of approximately 260 feet with two buoys separated by a distance of approximately 2.3 miles. Each unloading buoy would have:
 - Eight mooring lines consisting of wire rope and chain connecting each unloading buoy to anchor points on the seabed;
 - Eight anchor points consisting of suction piles;
 - One 16-inch inside diameter flexible pipe riser, and;
 - One electrohydraulic control umbilical from the unloading buoy to the riser manifold;
- Two riser manifolds with isolation and control valves located on the seabed below and offset approximately 500 feet from each unloading buoy;
- One 24-inch diameter natural gas flowline, with a length of approximately 2.5 miles, connecting the northern and southern riser manifolds;
- One 24-inch gas transmission line, approximately 10.9 miles long;
- One transition manifold with an isolation valve; and
- One hot tap and connecting pipe with a check valve from the transition manifold tying into the existing 30-inch Algonquin HubLine.

The proposed deepwater port terminal, the interconnected flowline and portion of the gas transmission line will be constructed entirely in federal waters. The placement of structures such as southern and northern riser manifolds, anchor piles, and anchor chains on the ocean floor will be subjected to the Section 10 of Rivers and Harbors Act of 1899. Section 404 of the Clean Water Act which regulates discharge of dredged or fill material in state waters does not apply in federal waters. Therefore, discharges of excavated or fill material during construction of the flowline (Figures 7 and 11), and portion (4,892 feet) of the gas transmission line to the state/federal water boundary (Figure 8) including the placement of concrete mattresses in transition areas will not be regulated under Section 404, however these activities will be regulated as placement of structures in the ocean floor under Section 10.

The entire gas transmission line will be buried to a minimum of 3 feet. The gas transmission line would extend approximately 10.9 miles from the northern riser manifold to the Algonquin HubLine (Figures 8, 9, and 10). Only the portion of the gas transmission line (51,775 feet) within state waters will be

regulated under Section 404 of the Clean Water Act. Pipeline trenching and backfill activities would result in discharge of excavated and fill material (Figure 11) into waters of the United States. Concrete mattresses will be installed across the Hibernia cable (Figure 12) at the proposed gas transmission line crossing point prior to and after pipeline installation and at the transition manifold and the hot-tap area (Figures 13 and 14). Placement of concrete mattresses (fill material) in State Waters will be subjected to Section 404.

A total of 121,934 cubic yards of material would be discharged during project construction activities (see Table 3). A summary of discharges is listed below:

- 142,477.32 cubic yards of material would be excavated, and 121,115.54 cubic yards of material would be backfilled during the installation of 51,775 feet of the proposed 24-inch gas transmission line constructed within State Waters. Approximately 729 cubic yards of concrete mattresses would be placed in transition areas.
- 560 cubic yards of material removed around the hot tap area. Approximately 32 cubic yards of backfill material would be placed.
- 296 cubic yards of material would be removed for the installation of the transition manifold tie-in spool to the hot tap area. Approximately 58 cubic yards of backfill material would be placed.

Project Description – Pipelines

The proposed 24-inch gas transmission line and the flow line installation will require trenching. The affected width for each trench sections (Figure 11) was taken as the length between the outer limits of the side-cast material that is stockpiled on each side of the trench after the trenching operation. The affected area was calculated by multiplying the width of the trench by the length of the trenched pipeline. Details including the calculation of the width of this affected section are shown in Tables 2 and 3. During the installation of the flowline and the gas transmission line a total of 10.588 acres and 84.429 acres, respectively, will be impacted. These would be considered a temporary impacts occurring during the installation of the pipelines.

Two dead man anchor (DMA) chains will be used to assist in pipe line installation. The affected area for the DMA assumes a conservative installation vessel movement from the start installation point equal to the maximum tolerance (with the chain sweeping in a triangle similar to the SRV vessel movement). The length of each dead man chain would be 1,375 feet. A total of 0.631 acre of sea bottom will be a temporary impacted due to the dead man chain sweeping.

Project Description - Anchor Piles

The area of each pile is calculated with an assumed 16-foot diameter suction pile (Figure 6 and Tables 2 and 3). A total of 16 anchor piles are proposed around the unloading buoy and two anchor piles at the start of the pipeline installation. A total of 0.088 acre of sea bottom would be impacted.

Project Description - Anchor Chain and Flexible Riser

The impact area of anchor chain sweeping on the sea bottom was estimated using the following information: average chain lengths for the north and south buoys; average chain touch down distances from the buoy-end of the chain when the buoys are fully submerged and when connected to the SRVs; and maximum estimated vessel excursion distances from the central buoy location while connected to the buoys. The average chain lengths were 2,825 feet for the northern buoy and 3,081.25 feet for the southern buoy (Figures 5 and 6). When the buoys are in operation and connected to the SRVs, the anchor chains will have static touchdown at an average distance of 500 feet from the buoy-end of the chain. The

maximum vessel excursion distance when connected to the buoys will be 66 feet in any direction from the central-most resting position of the buoy. This movement will result in sweeping of the anchor chains across the sea floor within an area that can be approximated by triangle with a base of 132 feet (i.e., two times the excursion distance) and a height equal to the chain distance from the anchor point to the touchdown point (i.e., chain length minus 500 feet). When the buoy is not in operation and is unconnected to the SRVs, the anchor chains will have static touchdown at a distance of 160 feet from the end of the chain. This will result in an additional scouring of the sea floor of an area than can be approximated by a triangle with a base of 132 feet and a height of 340 feet (i.e., difference between the connected and unconnected touch down point distances). Thus the estimated impact area for anchor chain sweeping is 29.663 acres for the southern buoy and 26.586 acres for the northern buoy. A total of 56.249 acres of sea bottom would have long-term impacts due to the anchor chain sweeping. This area estimate is conservatively high, as it assumes that the all chains will move the maximum distance possible along the entire length of chain relative to maximum vessel excursion distance.

Two flexible risers each measuring 1.3 feet ID will connect the buoys to the manifolds. When the buoys are not in operation and or submerged below the sea surface a maximum of 75 feet length may be touching the sea floor. It is estimated that the maximum excursion at the riser touch down point will be 24.75 feet. A total of 6.765 acre of sea bottom would be impacted by the flexible risers.

A total of 159.220 acres of sea bottom would be affected by construction and operation activities. Of that, 95.828 acres would be considered temporary impacts to the sea bottom during the construction period. A total of 69.393 acres would be long-term impacts from the placement of structures on the sea bottom during construction and scouring of sea bottom by anchor chains movement during operation (Table 3).

GENERAL INFORMATION

The project purpose is to provide a reliable and timely supply of natural gas that will increase energy diversity while minimizing environmental impacts and mitigating safety concerns in order to serve the growing demand for residential and industrial use, as well as electric generation within Massachusetts and New England.

This project will impact Essential Fish Habitat (EFH) for fish and invertebrates within the corridor of the pipeline and terminal. The USCG has prepared a draft Environmental Impact Statement (EIS) that includes an EFH Assessment in appendix F that is being reviewed by the National Marine Fisheries Service (NMFS). Based upon this assessment of impacts to EFH, we have preliminarily determined that the project may have an adverse effect on EFH and therefore it is likely further EFH consultation will be required prior to the final permit decision.

In order to properly evaluate the proposal, we are seeking public comment. Anyone wishing to comment is encouraged to do so. Comments should be submitted in writing by the date in the title block above. If you have any questions, please contact Ted Lento at (978) 318-8863 or (800) 362-4367, if calling from within Massachusetts.

In addition to or in lieu of sending written comments, we invite you to attend the public hearings listed below that the USCG, the MARAD and the Corps will conduct in the project area. There will be an informational open house and registration from 4:30 PM until 6 PM and the hearing will begin at 6 PM. By attending these public hearings, the Corps of Engineers seeks to fulfill its regulatory requirements to solicit public comments and input about the proposals. These comments will be considered in evaluating whether the application should be issued or denied.

Public Hearings

June 21, 2006

Salem State College Library
Charlotte Forten Hall
360 Lafayette Street
Salem, MA

June 22, 2006

Gloucester High School Auditorium
32 Leslie O. Johnson Road
Gloucester, MA 01930

All interested Federal, State and local agencies, interested private and public organizations, and individuals are invited to attend this public hearing. Persons wishing to provide oral comments are required to register at the entrance to the hearing room prior to speaking.

SEE NEXT PAGE FOR
DETAILS OF EVALUATION
FACTORS

Brian E. Valitor
for Karen Kirk Adams
Chief, Permits & Enforcement Branch
Regulatory Division

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 as amended.

Based on his initial review, the District Engineer has determined that little likelihood exists for the proposed work to impinge upon properties with cultural or Native American significance, or listed in, or eligible for listing in, the National Register of Historic Places. Therefore, no further consideration of the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended, is necessary. This determination is based upon one or more of the following:

- a. The permit area has been extensively modified by previous work.
- b. The permit area has been recently created.
- c. The proposed activity is of limited nature and scope.
- d. Review of the latest published version of the National Register shows that no presence of registered properties listed as being eligible for inclusion therein are in the permit area or general vicinity.
- e. Coordination with the State Historic Preservation Officer and/or Tribal Historic Preservation Officer(s)

Pursuant to the Endangered Species Act, the District Engineer is hereby requesting that the appropriate Federal Agency provide comments regarding the presence of and potential impacts to listed species or its critical habitat.

The following authorizations have been applied for or will be obtained:

- (X) Permit, License or Assent from State (Massachusetts).
- (X) Permit from Local Wetland Agency or Conservation Commissions.
- (X) Water Quality Certification in accordance with Section 401 of the Clean Water Act
(Massachusetts).

The States of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island have approved Coastal Zone Management Programs. Where applicable the applicant states that any proposed activity will comply with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program. By this Public Notice, we are requesting the Massachusetts Coastal Zone Management Office concurrence or objection to the applicant's consistency statement.

The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. All comments will be considered a matter of public record. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.
THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.

If you would prefer not to continue receiving Public Notices, please contact Ms. Tina Chaisson at (978) 318-8058 or e-mail her at bettina.m.chaisson@usace.army.mil. You may also check here () and return this portion of the Public Notice to: Bettina Chaisson, Regulatory Division, U.S. Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751.

NAME: _____
ADDRESS: _____

Deepwater Port License Application
Neptune Project

Section 10/Section 404

Table 2
Volume of Discharged Material and Impacted Area Calculation Details

	Station (Feet)	Length (Feet)	Affected Width (Feet)	Pipe Diameter (Feet)	Quantity (Unit)	Cut Section Area (Square Feet)	Cut Volume (Cubic Yards)	Backfill Factor	Backfill Volume (Cubic Yards)	Impacted Area (acres)	
24-in buried Flowline (1) (5)	00+98	128+73	12,776	36.10	2.00	1	18.80	8,895.88	0.85	7,561.50	10.588
Northern Manifold Tie-In Spool	00+00	00+50	50	13.65	2.00	1	N/A	N/A	N/A	31.11	0.018
24-inch buried gas transmission line (Federal Waters)	01+48										
50+40	50+40	4,892	64.90	2.00	1	74.30	13,462.10	0.85	11,442.75	7.289	
24-inch buried gas transmission line (State Waters)	285+86	23,546	64.90	2.00	1	74.30	64,795.10				
289+46	571+75	28,229	64.90	2.00	1	74.30	77,682.03	0.85	66,029.72	42.058	
Transition manifold Tie-in Spool to Hot Tap (2x6)	572+83	96	Varies		1	Varies	295.60	0.70	57.78	0.049	
Trench Section for Hot Tap Work Area (2x6)	573+23	40	66.40		1	164.50	559.48	0.70	31.11	0.131	
Anchor Piles (Northern and Southern Buoys)	Varies	N/A	N/A	16.41	16	N/A	N/A	N/A	N/A	0.078	
Dead Man Anchor Piles (Start of Pipelay)	Varies	N/A	N/A	16.41	2	N/A	N/A	N/A	N/A	0.010	
Anchor Chain/Wire (Southern Buoy) (4)	00+00	3081.25	N/A	N/A	8	N/A	N/A	N/A	N/A	26.586	
Anchor Chain/Wire (Northern Buoy) (4)	129+71	2825	N/A	N/A	8	N/A	N/A	N/A	N/A	29.663	
Dead Man Anchor Chain/Cable	00+00	1375	N/A	N/A	2	N/A	N/A	N/A	N/A	0.631	
16-inch Unloading Flexible Risers (4)	00+00	75	N/A	N/A	2	N/A	N/A	N/A	N/A	6.765	
Northern Riser Manifold Footprint	128+71	15	15X25	N/A	1	N/A	N/A	N/A	N/A	0.009	
Southern Riser Manifold Footprint	00+00	15	15X25	N/A	1	N/A	N/A	N/A	N/A	0.009	
Transition Manifold Footprint	571+75	15	15X25	N/A	1	N/A	N/A	N/A	N/A	0.009	
Concrete Mattresses (Burial Transitions - Flowline) (6)	Varies	Varies	N/A	Plenty	N/A	N/A	1.00	240.00	0.056		
Concrete Mattresses (Burial Transitions - Gas Transmission Line - Federal Waters) (6)	Varies	Varies	N/A	Plenty	N/A	N/A	1.00	191.11	0.028		
Concrete Mattresses (Burial Transitions - Gas Transmission Line - State Waters) (6)	Varies	Varies	N/A	Plenty	N/A	N/A	1.00	728.89	0.162		
Total							165,650.15		141,389.81	159.220	

Note: (1) Assumed a 15 percent loss for plow generated trench areas.

(2) Assumed a 30 percent loss for trenched areas requiring jetting.

(3) Assumed a 10 percent embedment of the pipeline.

(4) See Unloading Boring and Riser Arrangement (Figures 5 and 6) for anchor lengths and riser configurations

(5) Flowline only buried to top of pipe (not 3' burial). See Figure 7

(6) Mattresses included in fill and Trenched Affected Area Calculations

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Deepwater Port License Application

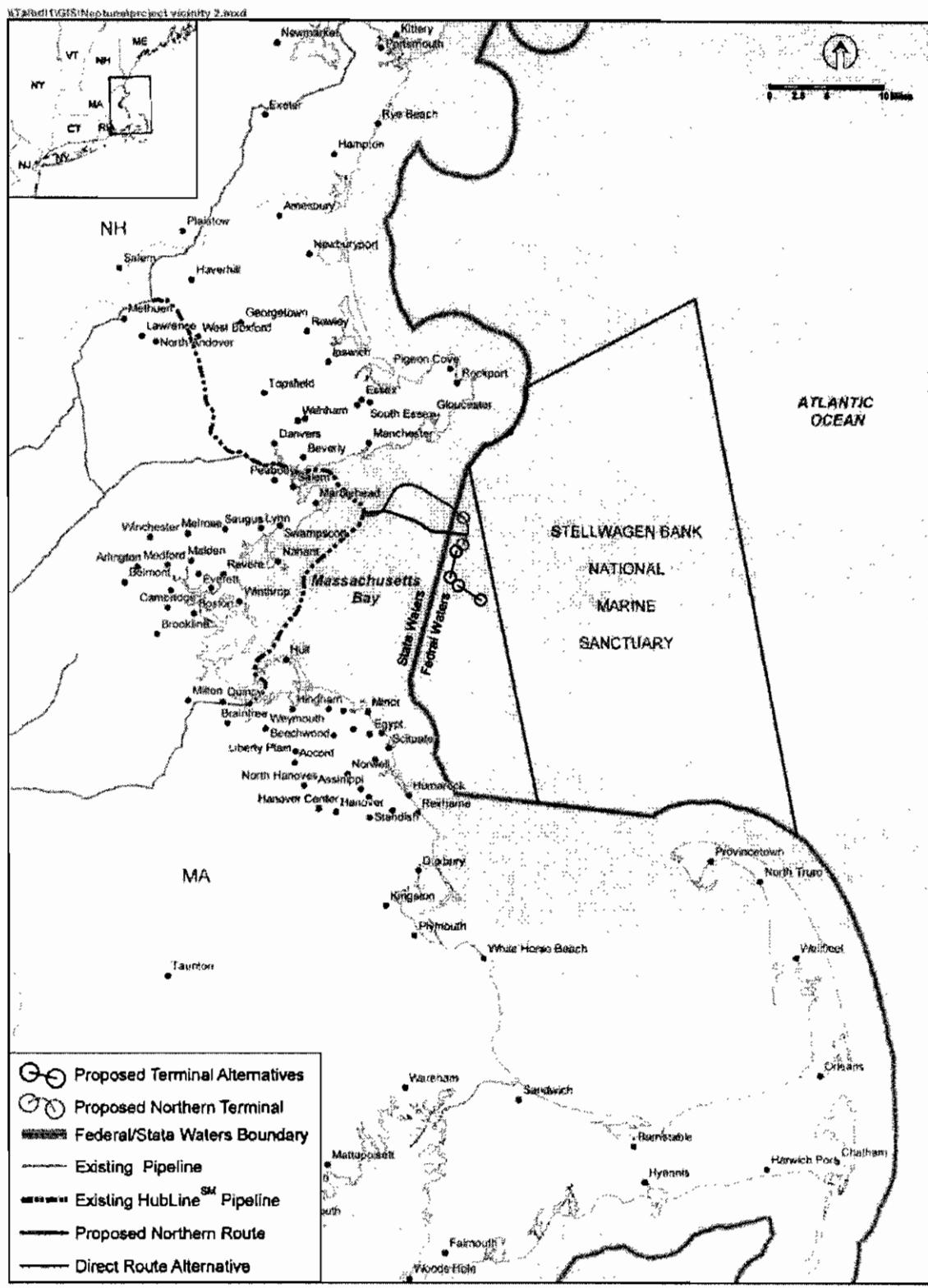
Neptune Project

Section 10/Section 404

Table 3
Summary of Discharged Volume, Impacted Area and
Duration of Impact from Project Activities

Parameter	Volume		Impacted Area	Impact Duration
	Cut (CY)	Fill (CY)	Acres	
Federal Waters				
Flowline Transition Areas (Concrete Mattresses)	0	0	0.056	Long-Term
Gas Transmission Line (Concrete Mattresses)	0	0	0.028	Long-Term
Dean Man Anchor Piles	0	0	0.010	Long-Term
Anchor Chains (Northern and Southern Buoys)	0	0	56.249	Long-Term
Anchor Piles (Northern and Southern Buoys)	0	0	0.078	Long-Term
16-inch Flexible Risers	0	0	6.765	Long-Term
Riser Manifolds (Northern and Southern)	0	0	0.018	Long-Term
Northern Riser Manifold Tie-in Spool to Transmission Line	0	0	0.018	Long-Term
Total Long-Term Impacts to Federal Waters	0	0	63.222	
State Waters				
Gas Transmission Line (Concrete Mattresses)	0	728.89	0.162	Long-Term
Transition Manifold	0	0	0.009	Long-Term
Total Long-Term Impacts to State Waters	0	728.89	0.171	
Total Long -Term Impacts of Project to Waters		728.89	63.393	
Federal Waters				
Dean Man Anchor Chain	0	0	0.631	Short-Term
24-inch Flowline	0	0	10.588	Short-Term
24-inch Buried Transmission Line	0	0	7.289	Short-Term
Total Short-Term Impacts to Federal Waters	0	0	18.508	
State Waters				
24-inch Buried Transmission Line	142,477.13	121,105.56 ⁽¹⁾	77.140	Short-Term
Transition Manifold Tie-In Spool to Hot-Tap	295.6	57.78 ⁽²⁾	0.049	Short-Term
Hot-Tap Working Area	559.48	31.1 ⁽²⁾	0.131	Short-Term
Total Short-Term Impacts to State Waters	143,332.21	121,194.45	77.320	
Total Short -Term Impacts of Project to Waters	143,332.21	121,194.45	95.828	
Grand Total ⁽³⁾ Impacts to Federal Waters	0	0	81.730	
Grand Total ⁽³⁾ Impacts to State Waters	143,332.21	121,923.34	77.491	
Grand Total ⁽³⁾ Impacts to Waters	143,332.21	121,923.34	159.221	

NOTES: 1. Fill Quantities Based on a 15% loss rate (Trench plowing)
 2. Fill Quantities Based on a 30% loss rate (Jetting)
 3. Volume totals rounded up to the nearest 100 CY



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Figure 1. Project Vicinity Map

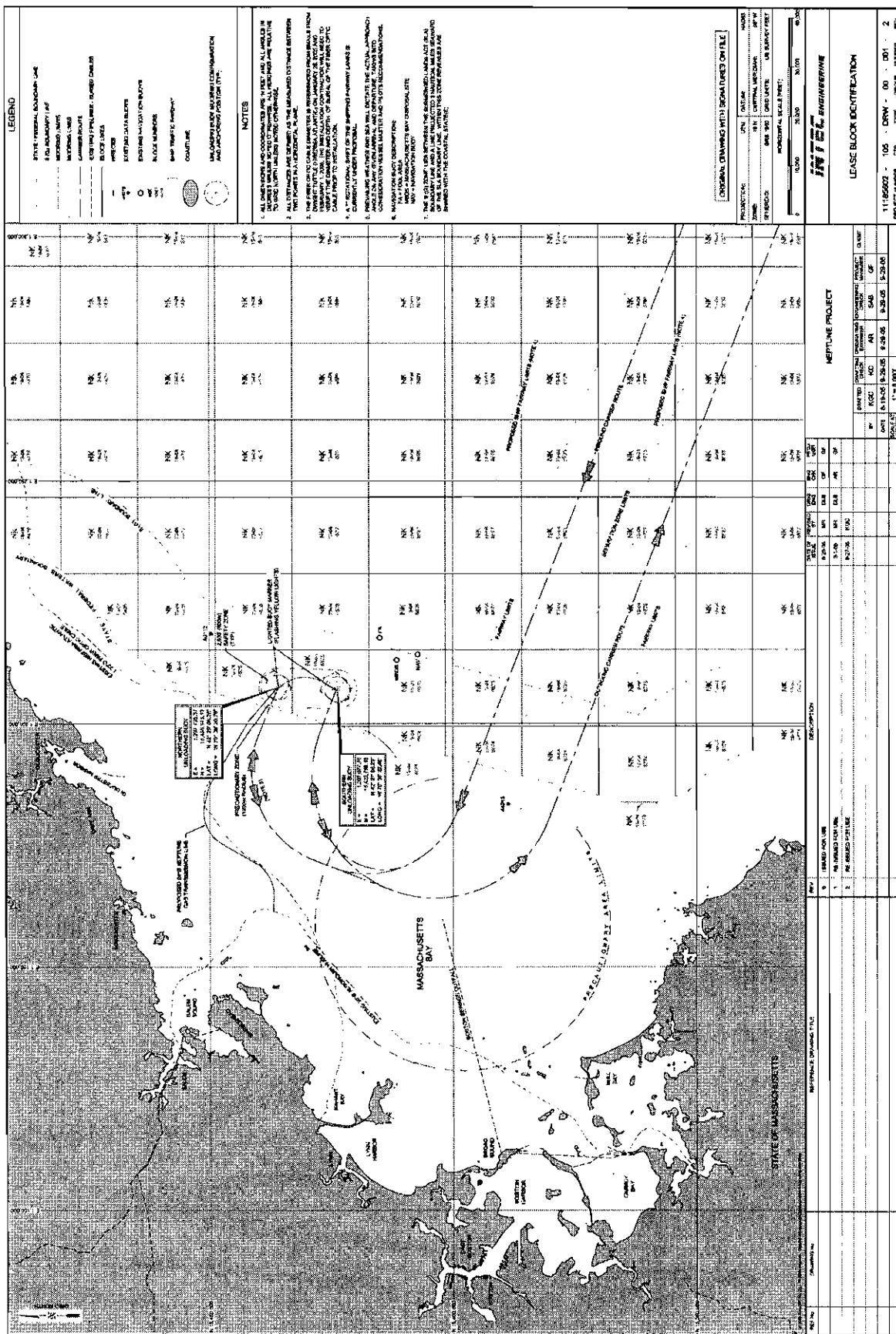


Figure 2. Lease Block Identification

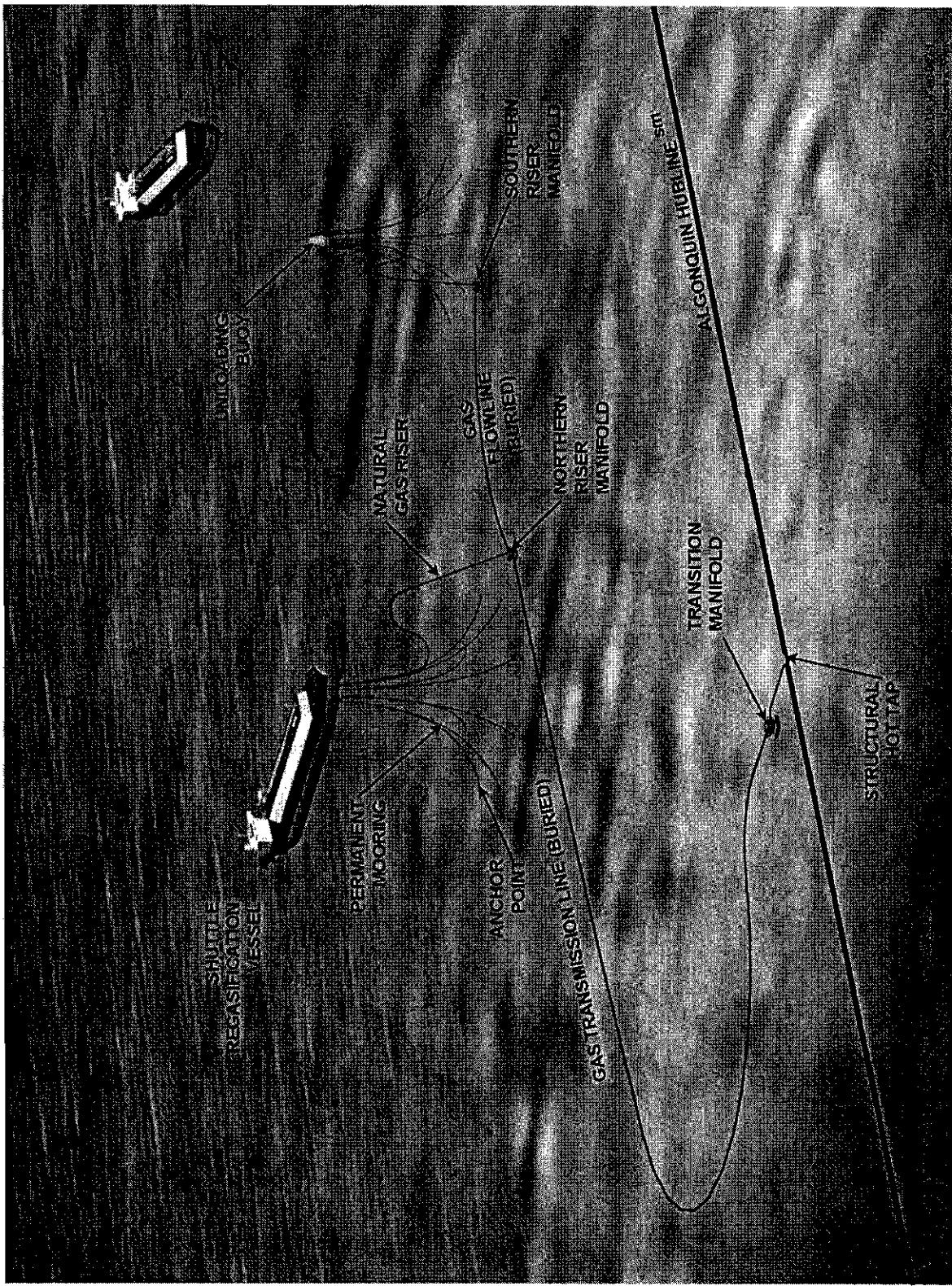


Figure 3. Deepwater Port Isometric View

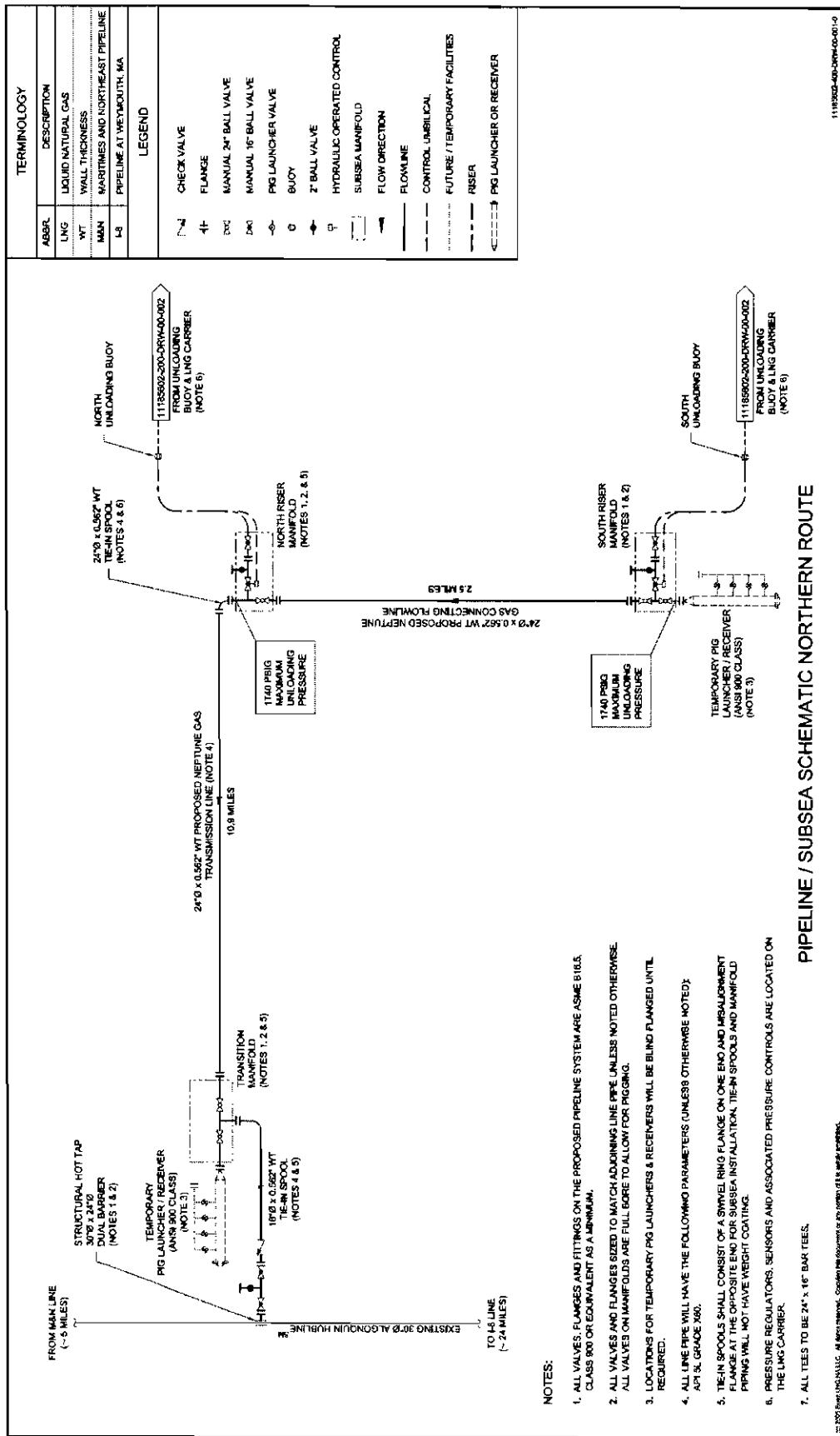


Figure 4. Pipeline and Subsea Schematic Northern Route

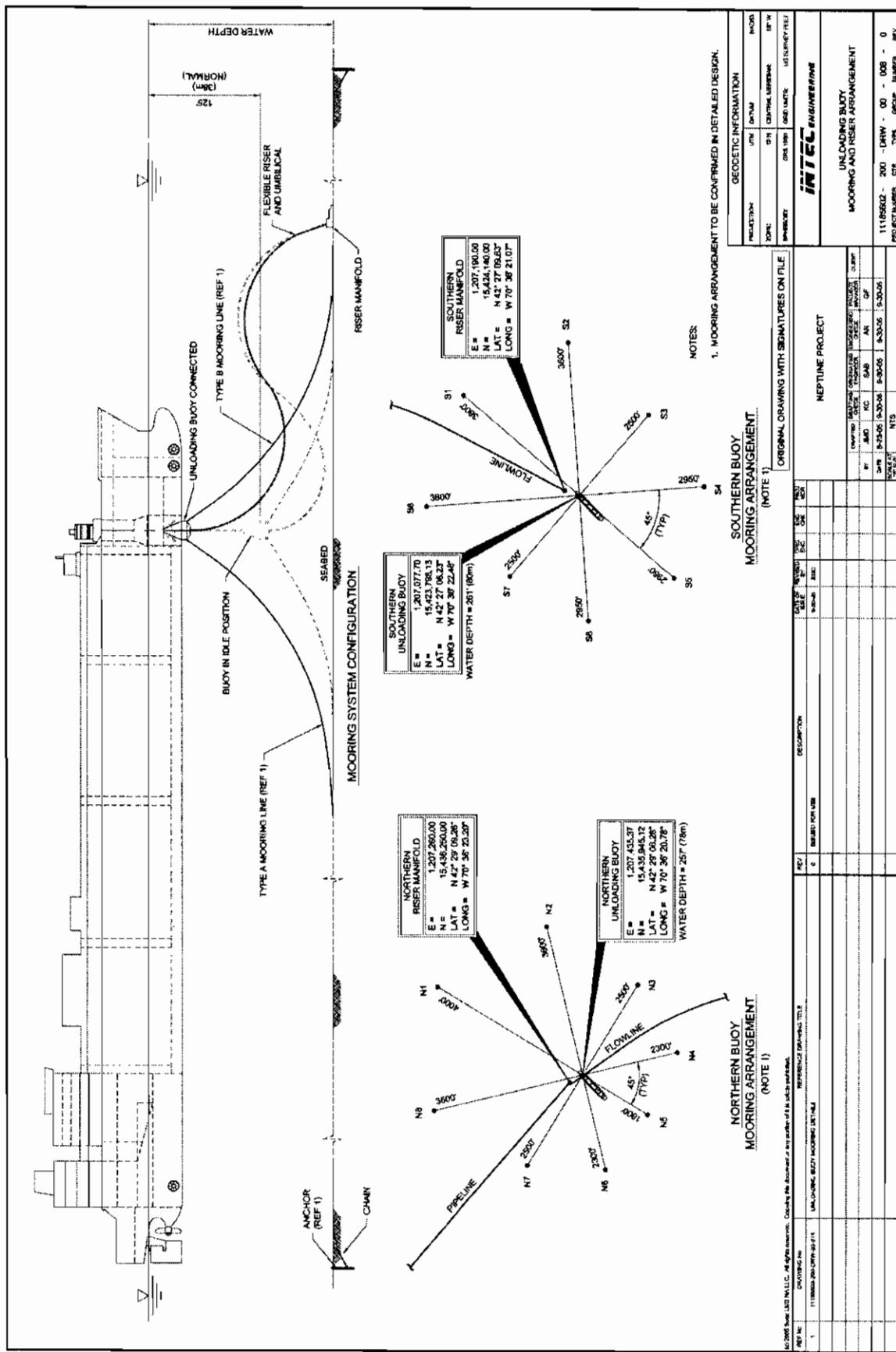
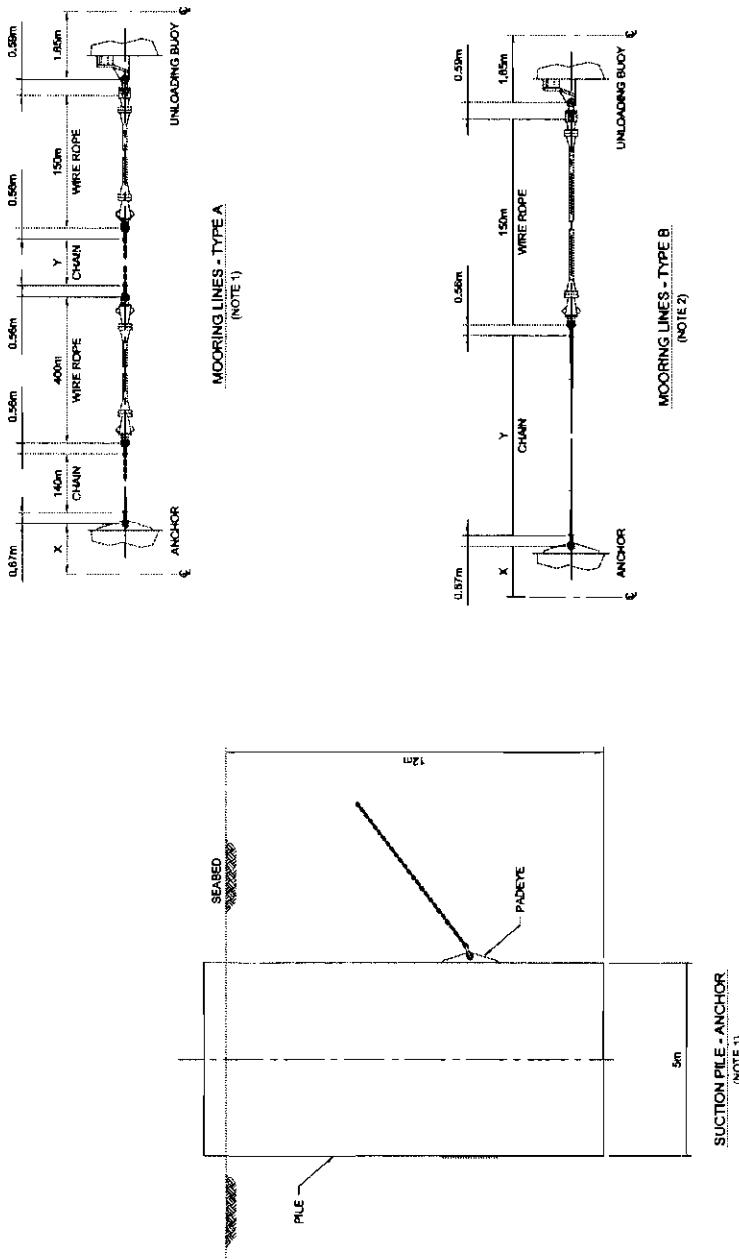


Figure 5. Unloading Buoy Mooring and Riser Arrangement



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1. PILE DIMENSIONS TO BE CONFIRMED IN DETAIL DESIGN.

Figure 6. Unloading Buoy Details

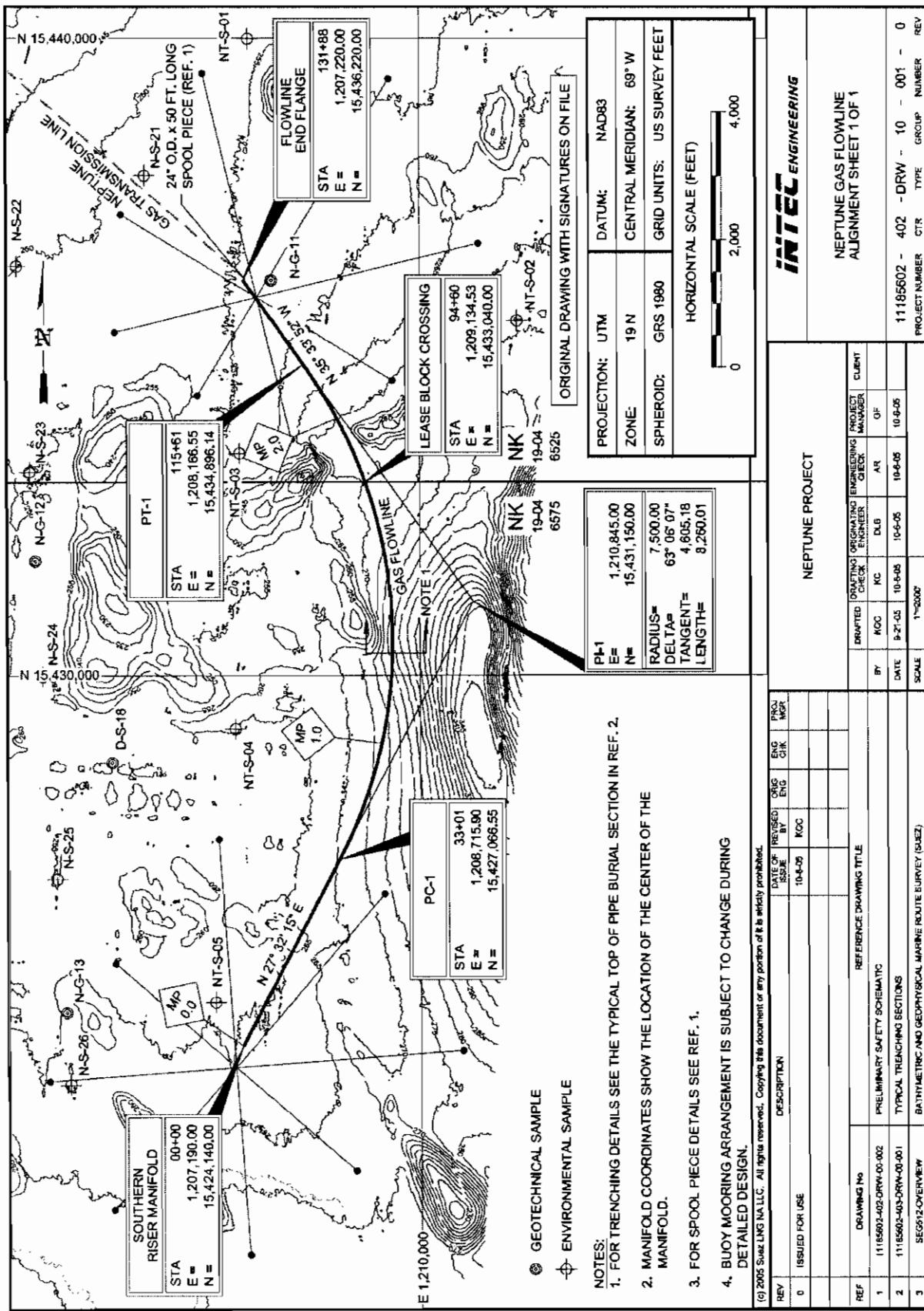


Figure 7. Neptune Gas Flowline Alignment Sheet 1 of 1

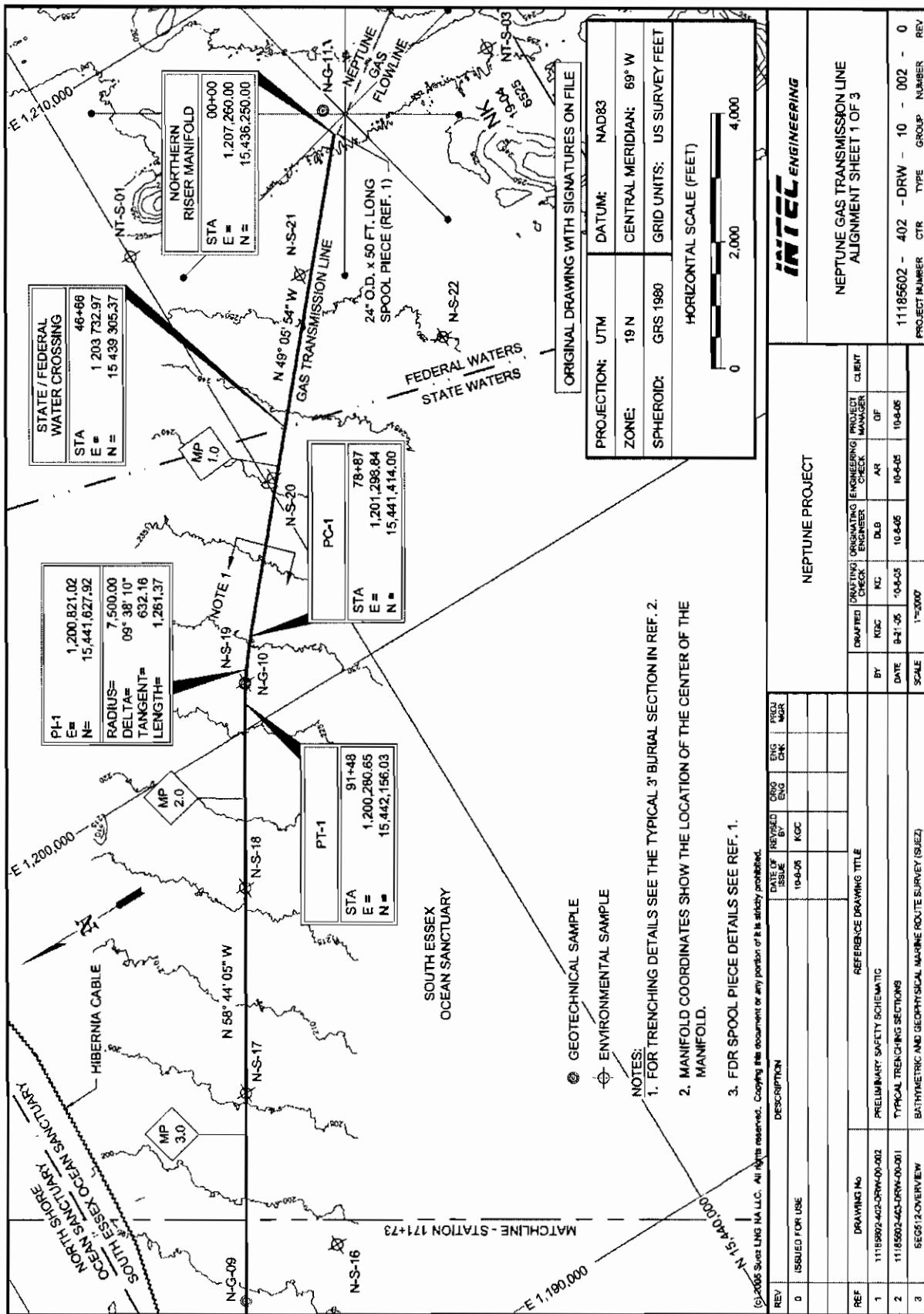
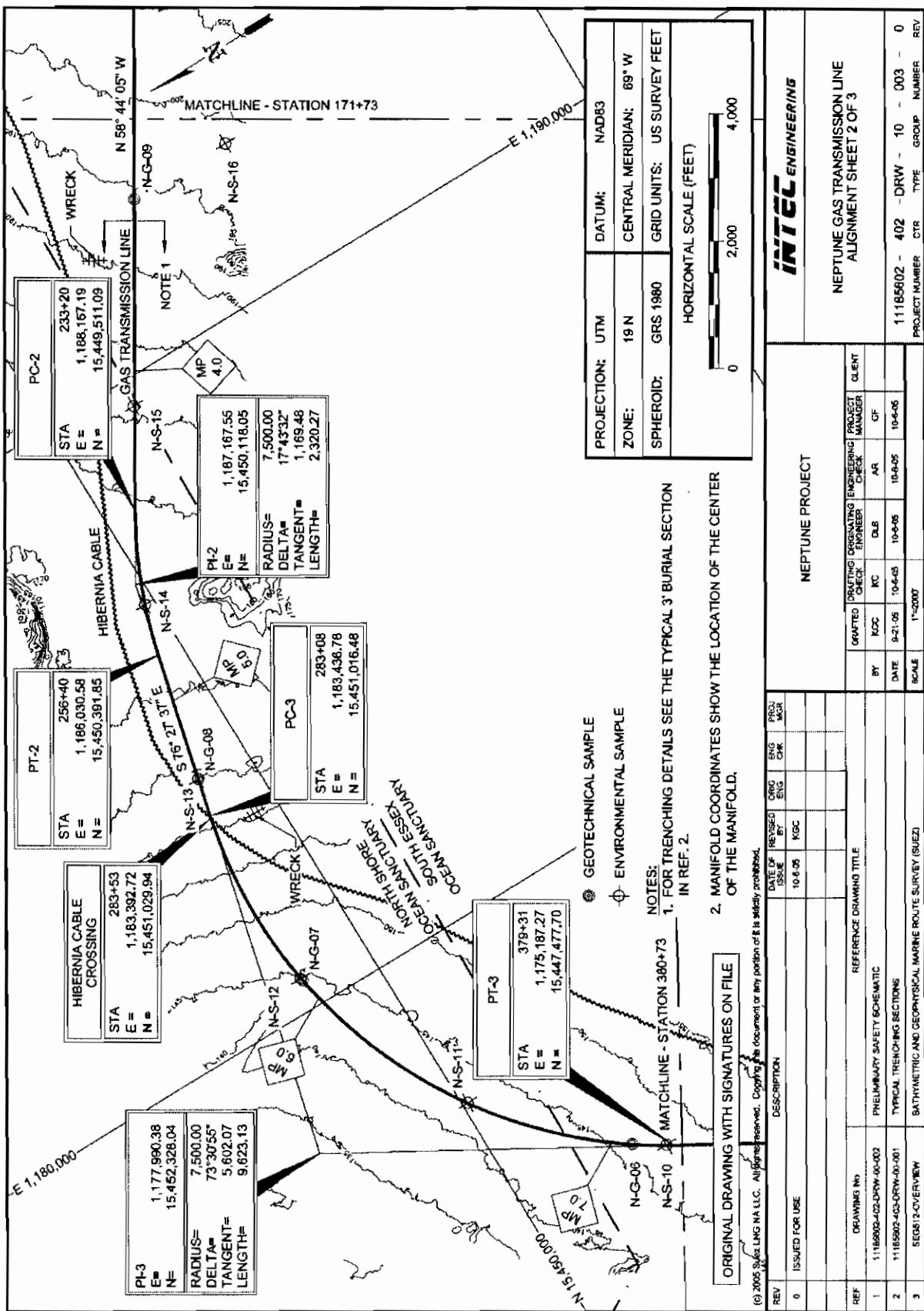


Figure 8. Neptune Gas Transmission Line Alignment Sheet 1 of 3



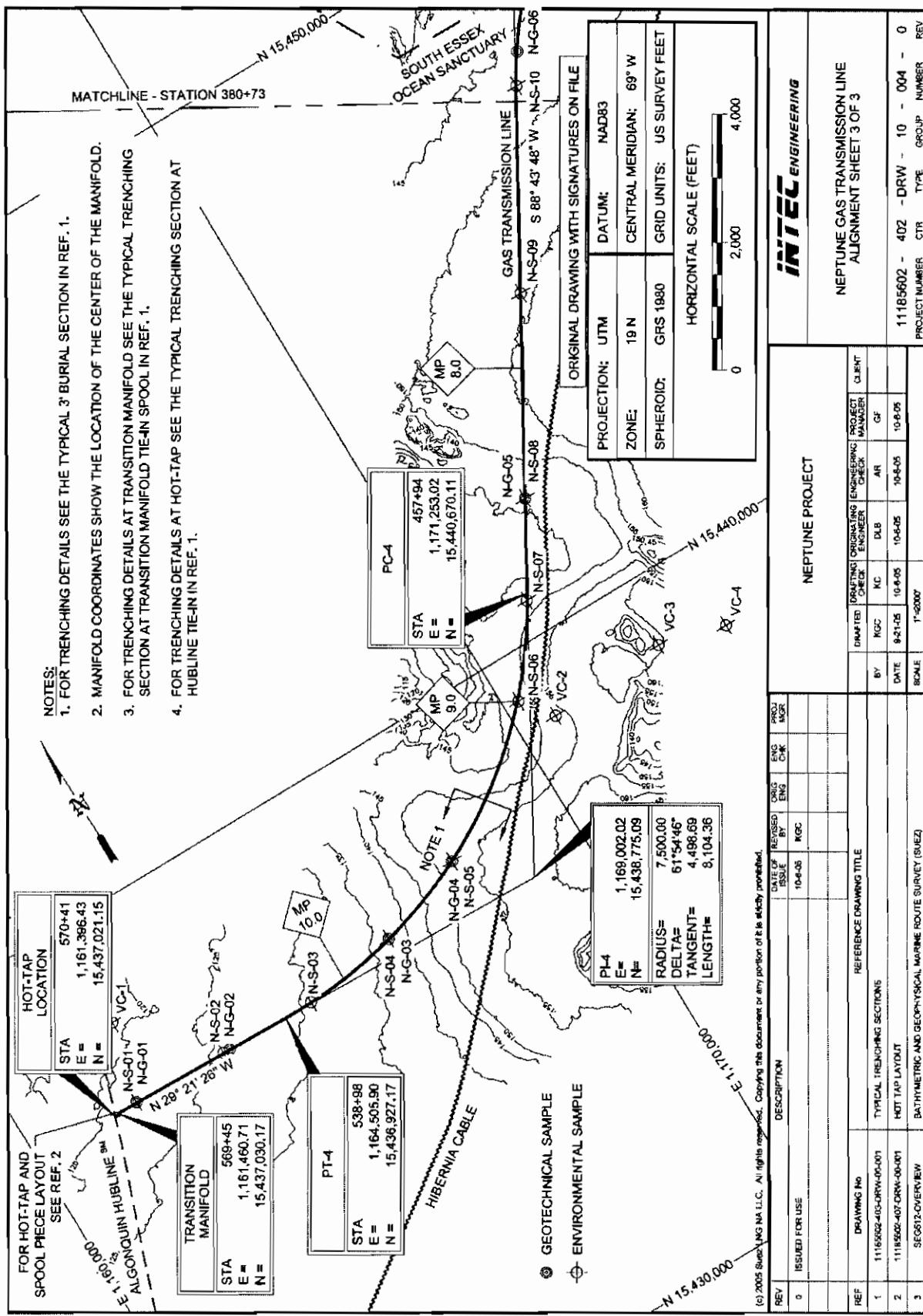


Figure 10. Neptune Gas Transmission Line Alignment Sheet 3 of 3

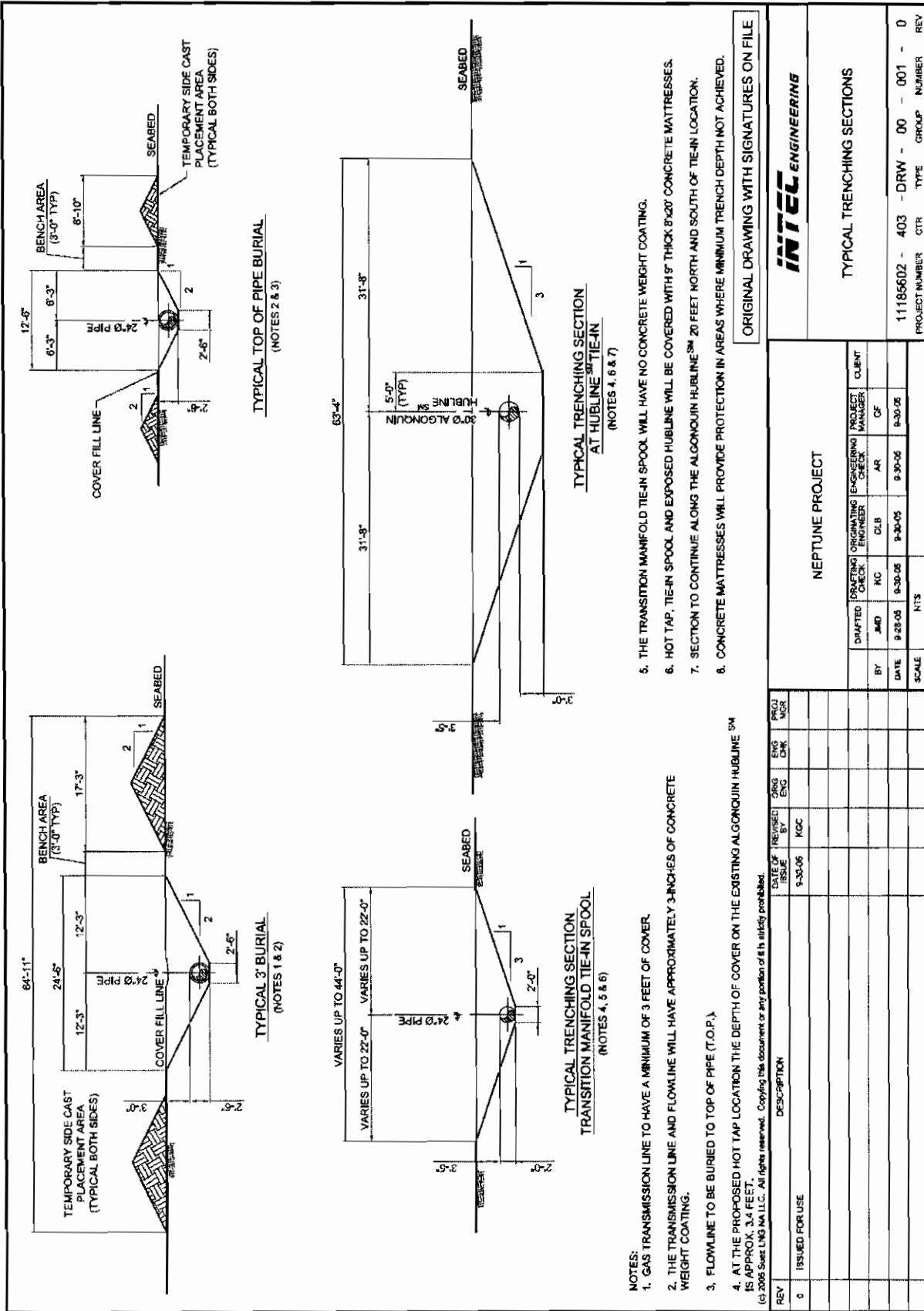


Figure 11. Typical Trenching Sections

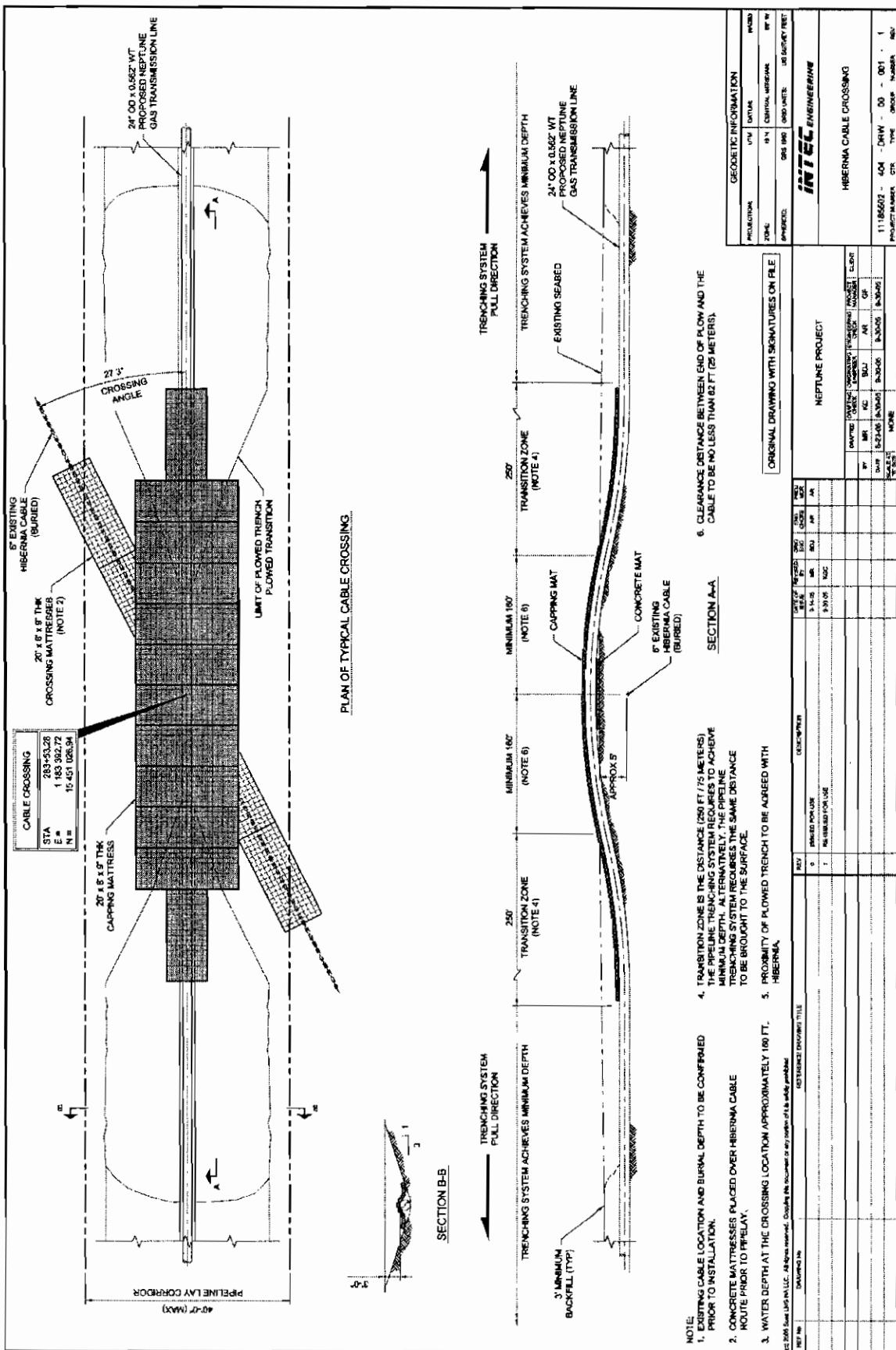


Figure 12. Hibernia Cable Crossing

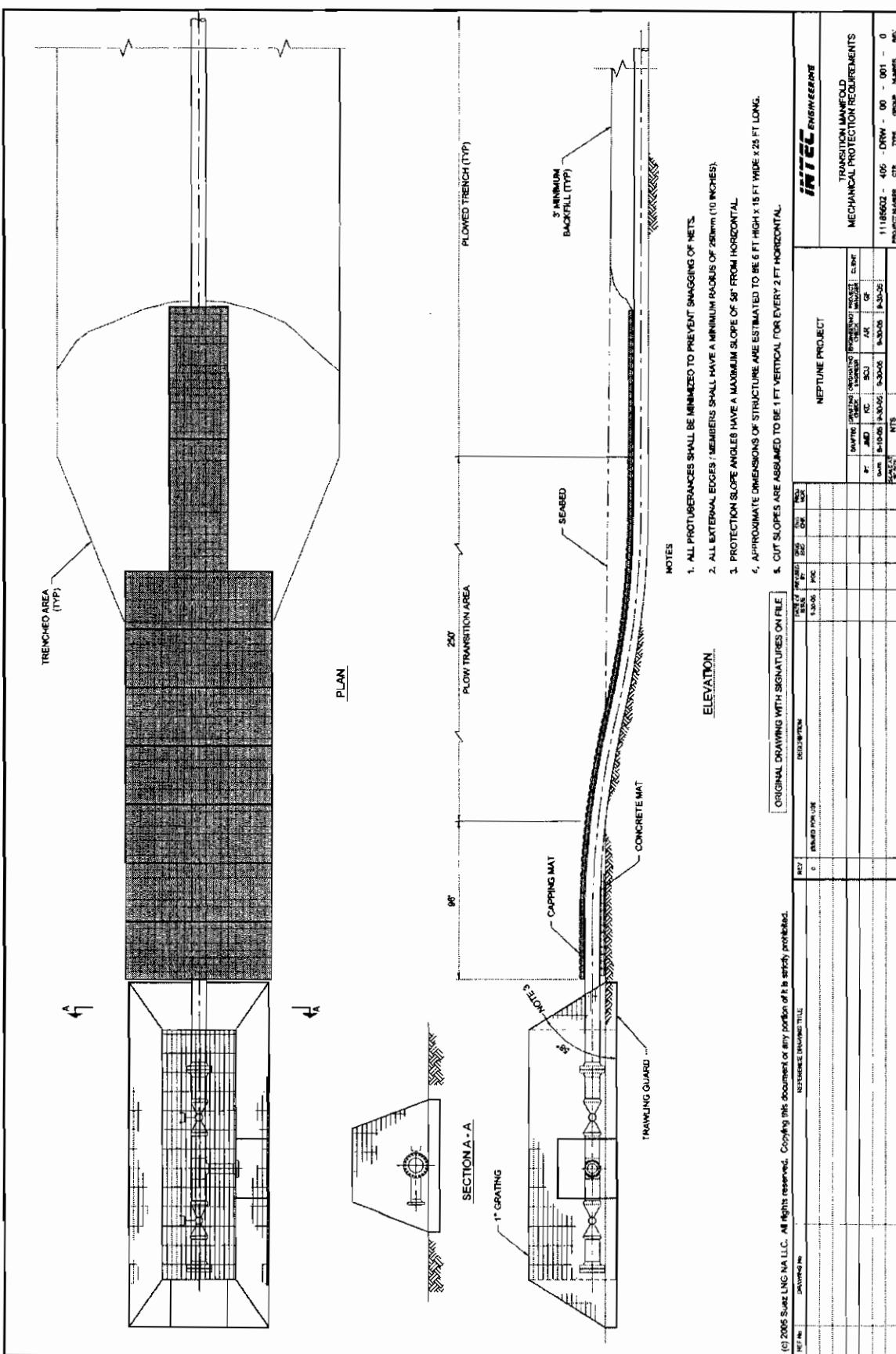


Figure 13. Transition Manifold Mechanical Protection Requirements

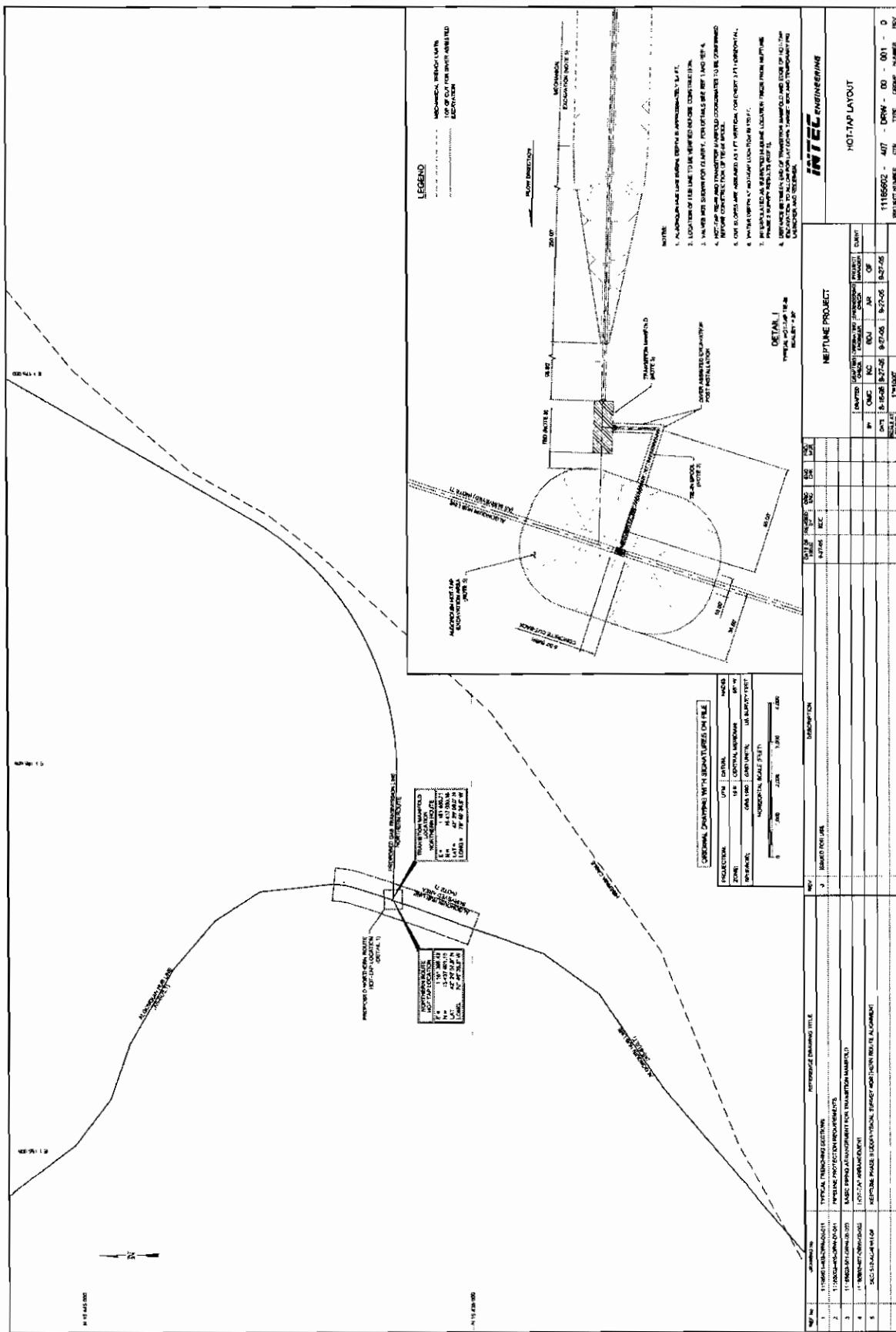


Figure 14. Hot-Tap Layout

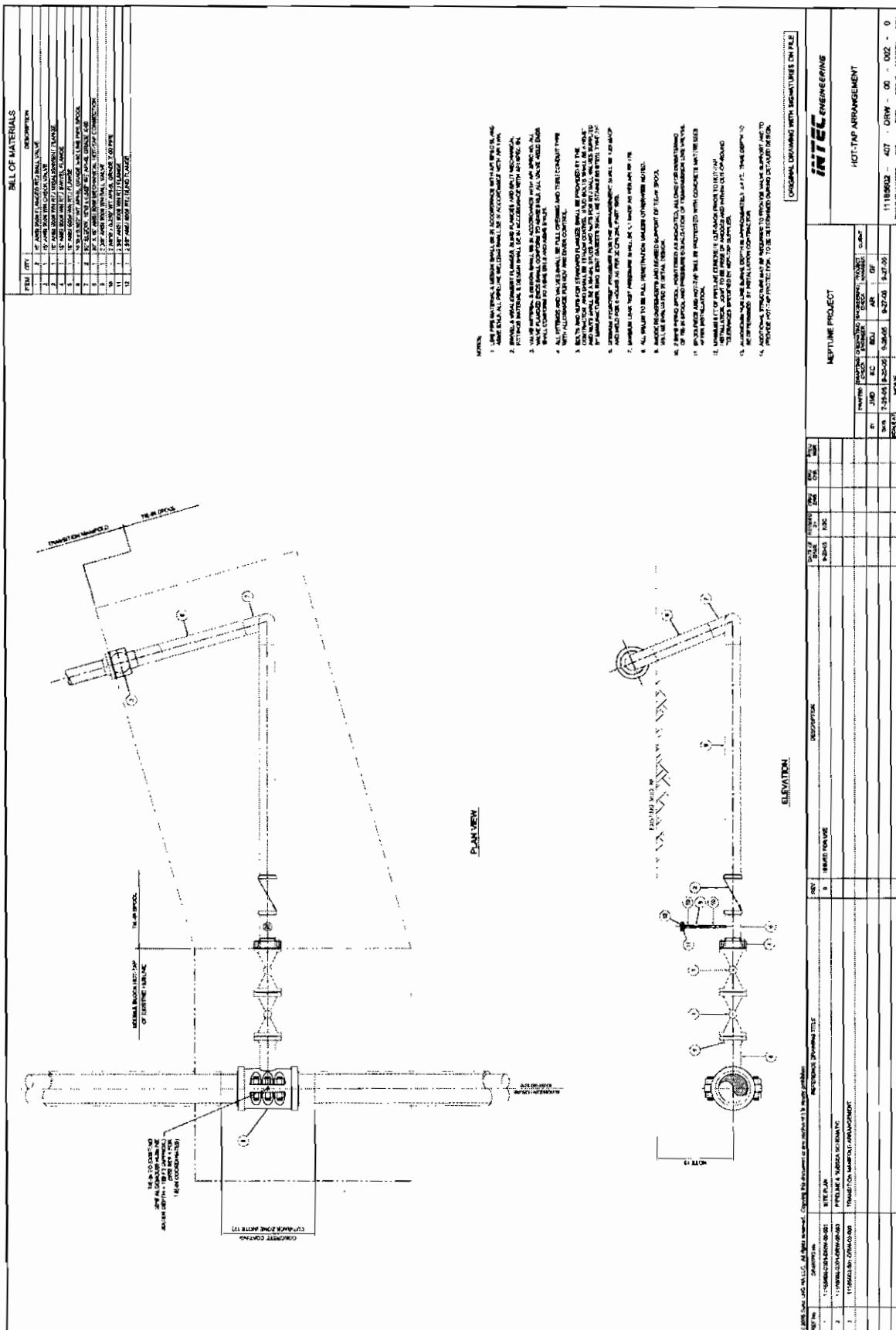


Figure 15. Hot-Tap Arrangement